

## ABSTRACT

A device and method for pumping an electrolyte solution includes a conduit having a first end, a second end and a lumen for containing the electrolyte solution. An opening at each end of the conduit allows electrolyte solution to enter and exit the lumen of the conduit. The device further includes a ferroelectric member that is positioned along a portion of the conduit. The ferroelectric member is formed with a contact surface for interaction with the electrolyte solution. An electrode is positioned adjacent to the ferroelectric member to polarize the ferroelectric member and charge the contact surface. Driving electrodes are positioned to establish a potential difference in the electrolyte solution across the portion of the conduit containing the ferroelectric member.

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